

REMARKS

Applicant respectfully requests reconsideration and allowance of all pending claims in view of the above-amendments and the following remarks.

I. CONTENT OF CLAIM 1 AS FILED

Claim 1 is directed to a method of watermarking a color image that has at least three components.

According to claim 1, such a method comprises an insertion step of a mark of watermarking, on at least one point of the image, according to an insertion rule taking into account the relative position of three component vectors associated to said at least one point.

II. OBJECTION TO THE SPECIFICATION

The abstract was objected to because it has a title. Enclosed herewith is a replacement abstract with no title. The content of the abstract is also amended to be more consistent with U.S. practice.

The specification is amended to replace the word "sued" by the word "used" on page 18, line 4, as initially intended.

Regarding the drawings, please find herewith enclosed amended figure 2, in which H and G have been replaced respectively by \tilde{H} and \tilde{G} in order to overcome the Examiner's objection.

III. CLAIM OBJECTIONS UNDER 37 C.F.R. §1.75(a)

Claims 1, 3, 9 and 25 were objected to for minor informalities.

With this Amendment, Applicant encloses an amended set of claims in which:

- the expression "for each of said components respectively" has been cancelled in claim 1 (and also in claims 19-22 and 26-27) in order to clarify it. In addition, the abstract is amended accordingly;
- claim 3 has not been amended as it is clear from figure 5 (described on page 29, line 9 to page 30, line 3) of the application that each vector is two-dimensional;
- the word "any" in claim 9 has been cancelled, as this was a typing mistake;
- the word "recuperated" has been replaced by "recovered" in claim 25, as suggested by the Examiner.

Claim 28 is added as a new independent claim, which includes the features of claim 1 and claim 10. This new claim corresponds to the embodiment described in the present application in which the vectorial approach is combined with a wavelet breakdown of the color components of the image.

IV. CLAIM REJECTIONS UNDER §101

Claims 20 and 27 were rejected as being directed to allegedly non-statutory subject matter.

Original claims 20 and 27 have been amended into “computer-readable medium” claims as suggested by the Examiner.

Claim 21 was rejected as being directed to allegedly non-functional descriptive material. Claim 21 is believed to be directed to functional descriptive material and therefore patentable is embodied in a computer-readable medium. Original claim 21 therefore has been amended into a “computer-readable storage medium” claim.

V. CLAIM REJECTIONS UNDER §102(e)

The Examiner considers that Reed (U.S. Publ. No. 2002/0067844) discloses all the features of claims 1 to 3, 18 to 22, 26 and 27.

Reed discloses a method of detecting a digital watermark embedded in a color image using infrared light. In particular, Reed describes a method of embedding a watermark in a quadrichromatic image (CMYK) in order to reduce the visibility of the watermark.

The Applicant does not agree with the Examiner and considers that claim 1 is new and non-obvious in view of Reed.

Reed does not disclose or suggest a vectorial approach of watermarking a color image, which implements an insertion rule taking into account the relative position of at least three component vectors at the point of the image where the insertion is conducted.

In Reed, the watermark signal is added to a point (pixel) of the image in all or some of the color dimensions. In particular, it is applied identically and independently to each of the three color dimensions or channels (C, M/Y and K) as shown in figure 3b, the watermark signal being out-of-phase for the K dimension.

In the invention recited in claim 1, in contrast, the three color vectors of the image are taken into account in synergy for the insertion of the mark.

Thus, Reed does not disclose all the features of claim 1 since it does not disclose the feature according to which the relative position of at least three component vectors is taken into account.

Independent claims 19, 20, 21, 22, 26 and 27 are valid for the same reasons as applied to claim 1.

Dependent claims 2-16 and 18 are also valid at least due to the fact they depend from claim 1. Dependent claims 23-25 are also valid at least due to the fact they depend from claim 22.

VI. CLAIM REJECTIONS UNDER §103(a)

Claim 17 was rejected as being allegedly unpatentable over Reed in view of Alattar, ""Smart Images' Using Digimarc's Watermarking Technology."

The Examiner considers that Reed (U.S. Publ. No. 2002/0067844) discloses all the features of claim 17, except the feature according to which said mark is a pseudo-random binary signature written in a redundant manner.

The Examiner considers that Alattar teaches such a feature. He concludes that it would have been obvious to a person of ordinary skill in the art at the time of the invention to use the teachings of Alattar in the watermarking system of Reed, and thus to obtain claim 17.

The Applicant disagrees with the Examiner and considers that claim 17 is new and non-obvious in view of the combination of Reed and Alattar.

Indeed, contrary to what the Examiner asserts, Alattar mentions (page 267, 1st para.) that each bit of the watermark signal is associated with a binary key obtained in a pseudo-random manner.

Thus, Alattar does not disclose the feature according to which said mark is a pseudo-random binary signature written in a redundant manner.

Therefore, claim 17 is new and non-obvious.

Besides, Alattar is not relevant to claim 1 since it does not disclose or suggests a vectorial approach of watermarking a color image. Therefore, the combination of Reed and Alattar is not relevant to claim 1 since none of these documents discloses a vectorial approach of watermarking a color image.

In view of the above, all claims are believed to be in condition for allowance.

The Director is authorized to charge payment of any additional fees associated with this paper or credit any overpayment to Deposit Account No. 23-1123.

Respectfully submitted,
WESTMAN, CHAMPLIN & KELLY, P.A.

By: / David D. Brush/ ,
David D. Brush, Reg. No. 34,557
Suite 1400, 900 Second Avenue South
Minneapolis, Minnesota 55402-3319
Phone: (612) 334-3222 Fax: (612) 334-3312